REMARKS

In the Office Action mailed July 31, 2007, claims 1, 2, 4-6, 9-12, 14, 17-19 and 21-23 were rejected and claims 15 and 16 were objected to. Claims 1, 9 and 10 were rejected under 35 U.S.C. §102(e) as being anticipated by Zhu (U.S. Pat. No. 6,870,706). Claims 4-6, 11, 12, 14, 17-19 and 21-23 were rejected under 35 U.S.C. §103(a) as being obvious over Zhu. Claim 2 was rejected under 35 U.S.C. §103(a) as being obvious over Zhu in view of Hirano et al. (U.S. Pat. No. 6,853,517) and/or Hanchi et al. (U.S. Pat. No. 6,967,805). Claims 15 and 16 were objected to as depending from a rejected base claim, but were indicated to be allowable if rewritten in independent form. Claims 7, 8, 20 and 24-27 had previously been withdrawn from consideration.

The present amendments to independent claims 1, 11 and 17 clarify that the reader and write (or writer core) are electrically isolated from each other such that the reader is not affected by fluctuations in voltage of the writer (or writer core). Prior art references that disclose reader and writer elements electrically linked through electrical connections to a common electrically conductive overcoat (as with the Zhu reference) do not satisfy the claim language.

Claims 7, 8, and 24-27 have hereby been canceled, but Applicants wish to preserve the right to represent those claims in a divisional or continuation application.

Claim Objections

Claims 15 and 16 were objected to as depending from a rejected base claim, but were indicated to be allowable if rewritten in independent form. Claim 15 has hereby been rewritten in independent form, and the objection to that claim should be withdrawn. Notification to that effect is requested.

Claim Rejections - 35 U.S.C. §102(e)

Claims 1, 9 and 10 were rejected under 35 U.S.C. §102(e) as being anticipated by Zhu (U.S. Pat. No. 6,870,706).

Amended independent claim 1 relates to a transducing head that requires a substrate, a writer having a writer core, a reader, an electrically insulating material, and an electrical connector for grounding the writer to the substrate. According to amended independent claim 1, the reader and the writer core are electrically isolated from the writer such that the reader is not affected by fluctuations in voltage of the writer core, and the reader and writer core are electrically isolated from one another by the electrically insulating material.

Zhu discloses a method for suppressing tribocharge in the assembly of magnetic heads. As summarized in the Amendment submitted April 19, 2007, Zhu discloses connecting a read head 2 to a substrate 20 to provide electrostatic discharge (ESD) protection. (Zhu, col. 4, ll. 39-41; col. 5, ll. 43-65; FIGS. 1-6d). The concern of Zhu is with grounding an undershield 10 of a read head 2 to a substrate 3 or 20. (Zhu, col. 9, 37-39). Zhu discusses prior art head gimbal assemblies (HGAs), and indicates that the invention of Zhu regards adding a direct connection between a read head 2 under-shield 10 and a grounded substrate 20 (which is designed by reference number 3 when in wafer form) to a basic prior art HGA design. (Zhu, col. 1, ll. 20-41; col. 4, ll. 26-30 and 39-40; col. 5, ll. 43-65; col. 6, ll. 40-57; col. 8, ll. 3-9; FIGS. 1-6d). Zhu appears to disclose that a grounding path is formed through the overcoat 21 that electrically links the read head 2 (which includes the upper shield 8, the under-shield 10 and the GMR element 13), the write head 4 (which includes the inductive coil 6 and the writer core 18), and the slider substrate 20. (Zhu, col. 1, ll. 22-63; col. 4, ll. 26-30; col. 7, line 53 to col. 8, line 2; col. 8, ll. 3-8; FIGS. 1-6d). The GMR element 13 is electrically connected to the upper shield 8 and the under-shield 10 by a balanced half-bridge. (Zhu, col. 6, ll. 25-32; col. 9, ll. 43-65;; FIGS. 7a-7b). Zhu explains that while the grounding path through the overcoat 21 remains, an additional direct grounding path between the under-shield 10 of the read head 2 is made to the substrate 20 to form a lower resistance path than through the overcoat 21. (Zhu, col. 4, ll. 26-30 and 39-42; col. 7, ll. 38-46). In total, Zhu discloses four embodiments for grounding the undershield 10 of the read head 2. (Zhu, col. 5, ll. 43-54).

Zhu discloses that the read head 2 (i.e., the GMR element 13 and the upper and under shields 8 and 10), the writer core 18 and the substrate 20 are electrically linked, that is, they form an "isolated unit". (Zhu, col. 7, line 53 to col. 8, line 2). Indeed, Zhu refers to the read head 2 and the write head 4 collectively as GMR head 1, which further emphasizes that the read and write heads 2 and 4 are electrically linked. (Zhu, col. 7, ll. 12-17 and 38-46; col. 8, ll. 1-2; FIGS. 4a, 4b and 5). A flex circuit cable 30 including conductive traces 32 on an insulator 34 are electrically connected to the GMR head 1, which includes the electrically linked read head 2 and write head 4. (Zhu, col. 7, ll. 17-41; FIGS. 1-4b). Electrical grounding of a writer core is not a concern of Zhu, although the writer core 18 and the grounded undershield 10 of the read head 2 are electrically connected.

It should further be noted that the disclosure of Zhu is similar to prior art that teaches "reader bleeders" that ground only reader elements during fabrication. As noted at pages 3 and 4 of the present application, reader bleeders like those of Zhu are distinguishable from the presently claimed invention because reader bleeders are, for various reasons, configured only for use during hard disc drive fabrication and not during hard disc drive use.

Zhu fails to show, teach or disclose each and every limitation of amended independent claim 1, because Zhu fails to show, teach or disclose a reader and a writer core that are electrically isolated from one another such that the reader is not affected by fluctuations in voltage of the writer core as required by that claim. As noted above, Zhu discloses that the read head 2 and the write head 4 are electrically linked together through the overcoat 21, because both the read head 2 and the write head 4 contact the overcoat 21. The read head 2 of Zhu is affected by fluctuations in voltage of the write head 4, because the read head 2 and the write head 4 are electrically linked through the overcoat 21. The Office Action comments on the flow of electrical charges, but the amended claim language is directed to electrical isolation, not merely a flow of charges. Therefore, Zhu fails to disclose electrically isolated reader and write core elements as required by amended independent claim 1. Thus, the rejection of amended independent claim 1 under §102(e) should be withdrawn. Notification to that effect is requested.

Claims 9 and 10 depend from amended independent claim 1, and include all of the limitations of that base claim. Therefore, dependent claims 9 and 10 are likewise allowable over the cited art, and the rejections under §102(e) should be withdrawn. Notification to that effect is requested.

Claim Rejections - 35 U.S.C. §103(a)

Claims 4-6, 11, 12, 14, 17-19 and 21-23 were rejected under 35 U.S.C. §103(a) as being obvious over Zhu (U.S. Pat. No. 6,870,706). The relevant disclosure of Zhu is discussed above.

Amended independent claim 11 relates to a transducing head that includes an electrical ground, a reader positioned upon a substrate, an electrically insulating material, a writer positioned adjacent to the reader and having a writer core, and a resistor electrically connected between the writer core and the electrical ground for grounding the writer. According to amended independent claim 11, the writer is positioned adjacent the reader and is electrically isolated from the reader such that the reader is not affected by fluctuations in voltage of the writer core. Further, amended independent claim 11 recites that the reader and the writer core are electrically isolated from one another by the electrically insulating material.

Amended independent claim 17 relates to a transducing head that includes an electrical ground, a reader, a writer that is electrically isolated from the reader such that the reader is not affected by fluctuations in voltage of the writer, and a thin film resistor electrically connected between the writer and the electrical ground for grounding the writer.

Zhu does not disclose, teach or suggest each and every limitation of amended independent claims 11 and 17, because, as discussed above, Zhu fails to show, teach or disclose a reader and a writer (or a writer core thereof) that are electrically isolated from one another such that the reader is not affected by fluctuations in voltage of the writer core as recited by those claims. Rather, Zhu discloses that the read head 2 and the write head 4 are electrically linked together by electrical connections to the overcoat 21. Zhu contains no suggestion for modifying its structures (or those of the prior art) to eliminate the electrical link between the read head 2 (i.e., the undershield 10 of the reader 2) and the write head 4 (i.e., the writer core 18 of the write head 4). Indeed, the only way in which grounding could be provided to the writer core

18 and the writer 4 of Zhu is by way of the common electrical connection between the writer core 18 and the read head 2 to the overcoat 21. In that respect, electrically isolating the read head 2 and the writer core 18 of the write head 4 would eliminate any grounding function provided to the writer core 18 and the write head 4.

The Office Action notes that the same advantages of having a reader bleeder resistor would be applicable to a connecting a resistor to a writer (or writer core thereof). However, this does not overcome the fact that Zhu fails to disclose, teach or suggest grounding the writer (or writer core thereof) while electrically isolating the writer and the reader.

Thus, the rejections of amended independent claims 11 and 17 under §103(a) should be withdrawn. Notification to that effect is requested.

Claims 4-6 depend from amended independent claim 1 and include all of the limitations of that base claim, claims 12 and 14 depend from amended independent claim 11 and include all of the limitations of that base claim, and claims 18, 19 and 21-23 depend from amended independent claim 17 and include all of the limitations of that base claim. For the reasons discussed above with respect to amended independent claims 1, 11 and 17, dependent claims 4-6, 12, 14, 18, 19 and 21-23 are likewise allowable over the cited art. Furthermore, dependent claims 4-6, 12, 14, 18, 19 and 21-23 contain additional limitations not disclosed, taught or suggested by the prior art of record.

Thus, all of dependent claims 4-6, 12, 14, 18, 19 and 21-23 are in condition for allowance over the cited art. The rejections of those claims under §103(a) should be withdrawn. Notification to that effect is requested.

Claim 2 was rejected under 35 U.S.C. §103(a) as being obvious over Zhu in view of Hirano et al. (U.S. Pat. No. 6,853,517) and/or Hanchi et al. (U.S. Pat. No. 6,967,805). The Office Action states that Zhu does not disclose a grounded disc, but cites Hirano et al. and Hanchi et al. as each disclosing that a hard disc drive disc should be grounded.

Claim 2 depends from amended independent claim 11, and include all of the limitations of that base claim. Therefore, dependent claim 2 is likewise allowable over the cited art, and the rejection of that claim under §103(a) should be withdrawn. Notification to that effect is requested.

CONCLUSION

The pending claims are now in condition for allowance. The Commissioner is authorized to charge any additional fees associated with this paper or credit any overpayment to Deposit Account No. 11-0982.

Respectfully submitted,

KINNEY & LANGE, P.A.

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Austen Zuege, Reg. No. 57,907
THE KINNEY & LANGE BUILDING
312 South Third Street
Minneapolis, MN 55415-1002
Telephone: (612) 339-1863
Fax: (612) 339-6580

AZ:kmm